



Blood Borne Pathogen Factors Review

Georgia Department of Administrative Services

March 2011

Course Objectives



- **What are Blood borne Pathogens?**
- **Why are they harmful?**
- **What must I do to protect my workers?**
- **What is and how do I write an Exposure Control Plan?**

Disease



PATHOGENS

- Parasite
- Bacteria
- Fungi
- Virus

Disease



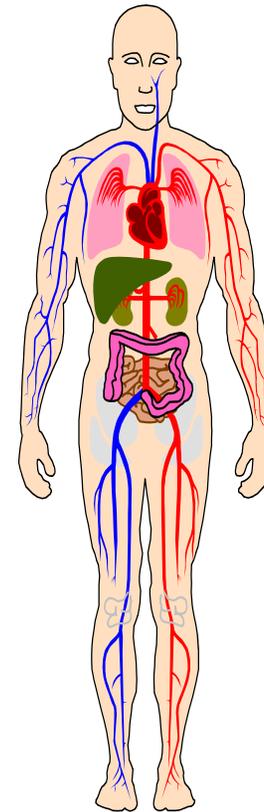
TRANSMISSION

- Air
- Fecal
- Blood borne

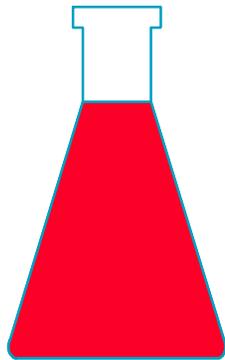
What are Blood borne Pathogens ?



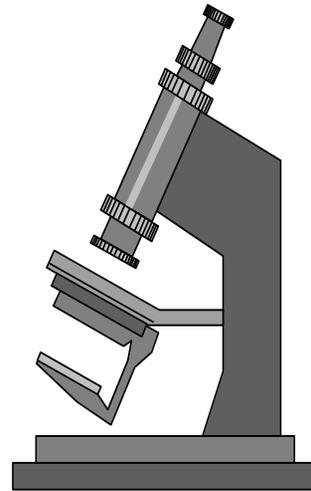
- How are they harmful?
- How are they contracted?
- Some facts and figures.



Definitions



Blood

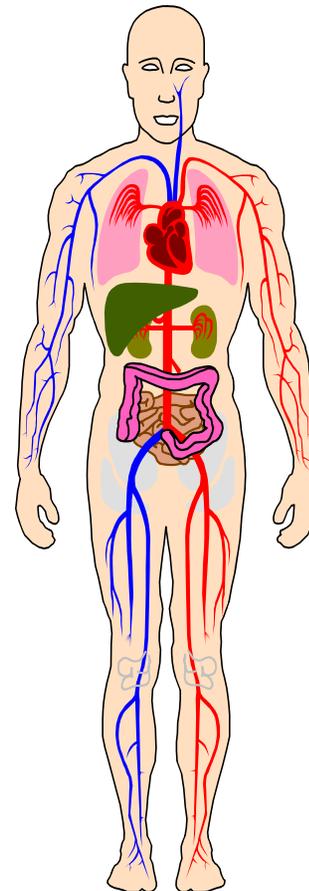
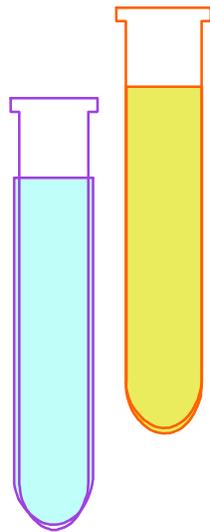


Blood borne
Pathogens

Definitions



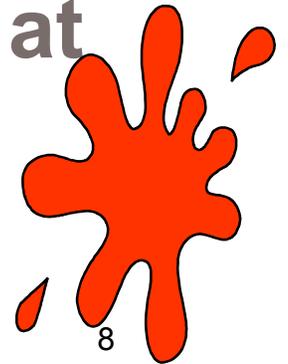
Other Potential infectious Materials (OPIM)



Hepatitis B or C Virus



- Inflammation of the liver
- Causes liver damage ranging from mild to fatal
- Can live in a dry environment for at least 7 days





HBV -Hepatitis B

- **Very infectious**
 - 1/3 no symptoms, 1/3 flu-like, 1/3 severe
 - 6 to 10% of cases infectious for life (carrier state)
- **In the past, 140,000-300,000 new infections per year**
 - 5,000-6,000 deaths/yr from chronic liver disease
- **Safe and effective vaccine is now available**
 - Many workers are not vaccinated

HBV - Hepatitis B



Health Care Workers (HCW) and HBV

- **Approximately 400 HCW infected annually.**
- **This is a decrease from 17, 000 in 1983 and 1,000 in 1994.**
- **25% of infected develop acute hepatitis.**
- **10-30% of health/dental workers show evidence of past HBV infection.**



HCV - Hepatitis C

- **Affects 4 times more people than HIV.**
- **4 million Americans infected.**
- **Only 25% of those infected have been diagnosed.**
- **In 1995, an estimated 560-1120 cases among HCW in U.S.**



HCV - Hepatitis C

- Symptoms may or may not be present.
- Infection may lead to carrier state.
- Carrier state can develop with or without symptoms.
- Carrier state can lead to chronic liver disease, cirrhosis (10 year latency), or cancer (alcohol is strong co-factor).
- Leading cause of liver transplant in U.S.



HCV - Hepatitis C

- **85% of Hepatitis C infections persist for life.**
- **70% develop chronic liver disease.**
- **Signs and symptoms may not appear until 10 years after infection.**
- **Onset of symptoms may present with severe liver disease.**
- **No broadly effective treatment.**
- **No vaccine available.**



HCV - Risk Factors

- **Blood transfusion prior to 1992**
- **IV drug use**
- **Unprotected sex (multiple sexual partners)**
- **Occupational exposure to blood with contaminated sharp**
 - Risk is intermediate between Hepatitis B and HIV



Human Immunodeficiency Virus (HIV)

- Attacks the human immune system
- Can live in a dry environment for only a few hours
- > 1 million infections in U.S.
- 56 documented cases among HCW
- 138 cases of possible occupational transmission

AIDS



- **AIDS = Acquired Immunodeficiency Syndrome**
- **Results from destruction of the human immune system from infection with HIV**
- **Some have no symptoms or less severe symptoms**
- **No vaccine available yet**

HBV & HIV Compared

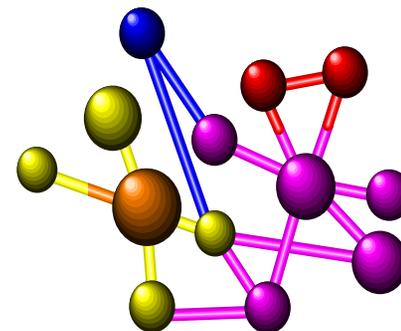


	HIV	HBV
• HCW cases	400/yr.	56/yr.
• Risk of infection		
▪ Needle stick	1/300	6-30/100
• Vaccine available	No	Yes

HBV & HCV Compared



	<u>Hepatitis C</u>	<u>Hepatitis B</u>
• Infectivity	Low	Very High
• Nucleic Acid	RNA	DNA
• Carrier state	>80%	Variable {10-50%}
• Route:	Blood	Blood



Exposure Control Plan



“To eliminate or minimize employee exposure”

- **Exposure determination**
- **Controls**
 - Universal precautions (or equivalent system)
 - Engineering controls
 - Work practices
 - Personal protective equipment
 - Housekeeping



Exposure Control Plan (cont'd)



- Hepatitis B vaccination
- Post exposure evaluation & follow-up
- Communication and training
- Recordkeeping

Exposure Determination



- Do we have job classifications where ...
 - All employees are occupationally exposed?
 - List the classifications
 - Some employees are occupationally exposed?
 - List the classifications
 - List the tasks with exposure
- Determine exposure without regard for PPE the worker uses

Universal Precautions



All human body fluids if they can't be distinguished

Engineering Controls



- **Isolate or remove the blood borne pathogen hazard from the workplace**
 - » A physical guard
 - » Barrier
 - » Environmental controls
 - » Other devices



Engineering Controls

- **Annual evaluation and documentation**
- **Solicit input from patient care providers**
- **Implement commercially available, effective and appropriate devices**
- **Document justifications for not using safer devices**

Physical Guard

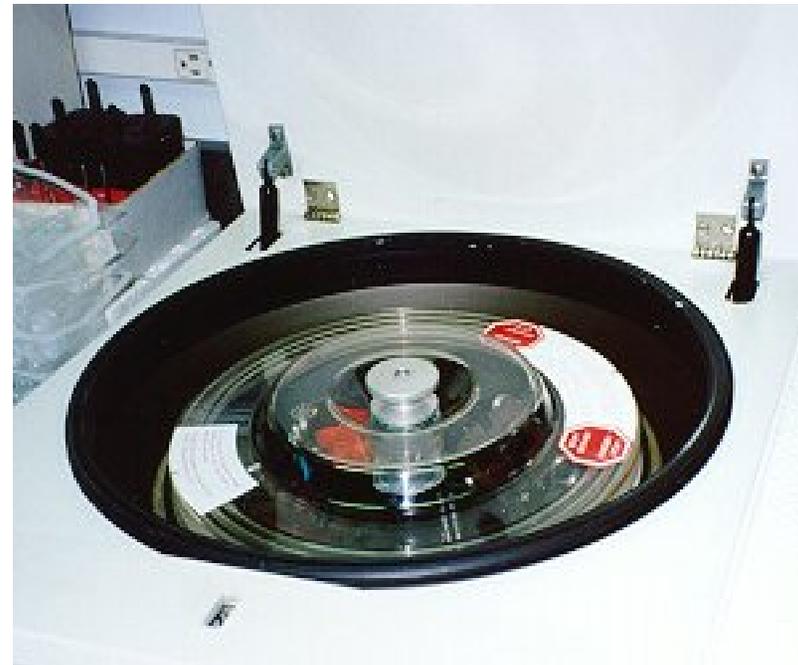


Sharps disposal containers

- Closable
- Puncture resistant
- Leakproof
- Labeled



Barriers



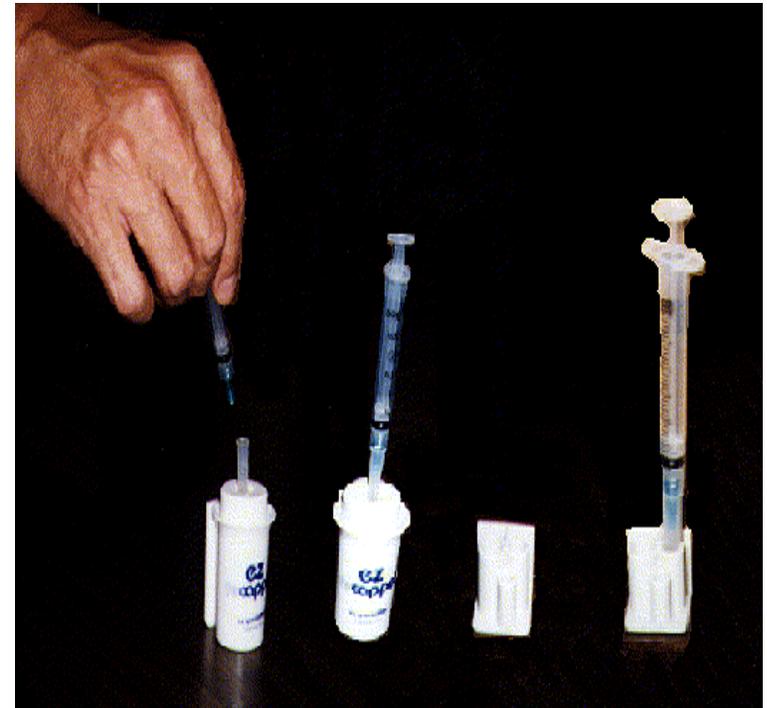
Environmental Controls



Other Devices



- **Avoid recapping**
- **Use Safer Sharp Devices**
 - » needleless IV systems
 - » retractable syringes and lancets
 - » puncture-resistant capillary tubes



Work Practice Controls



Safer steps to do the job!

- **Prohibit two-handed needle recapping**
- **Do not bend, break or remove needles (incl. phlebotomy)**
- **Wash hands between glove use**
- **Flush body parts with water after contact with blood or OPIM**
- **Remove PPE before leaving work area**

Examples of Work Practice Controls



Lab coat removal



Personal Protective Equipment (PPE)



Provided at no cost to employee

- » Gloves
- » Gowns
- » Face shields and/or masks
- » Eye protection
- » Resuscitation devices
- » Lab coats

PPE



Gloves

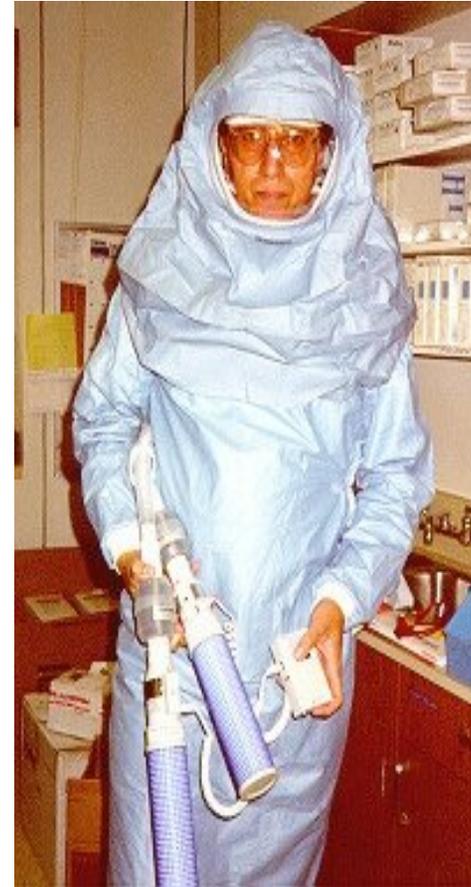
- Latex
- Nitrile
- Vinyl
- Utility



PPE



Gowns



PPE



Eye - Face protection and masks



PPE



Resuscitation devices

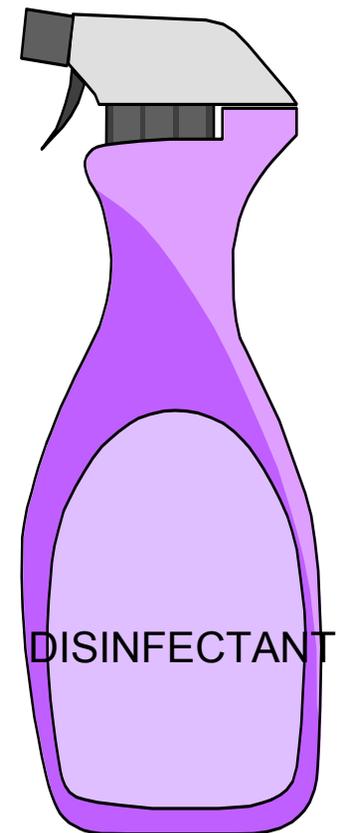


Housekeeping



Maintain a clean and sanitary workplace

- Written cleaning and decontamination schedule
- Contaminated waste disposal methods
- Laundry



Regulated Waste



- **Blood or OPIM**
 - » Liquid
 - » Semi-Liquid
 - » Contaminated sharps
 - » Lab or medical waste
- **Other items caked with dried blood or OPIM**

Regulated Waste Containers



- Easily accessible
- Leakproof
- Maintained upright
- Labeled or color coded
- Replaced routinely (no overfill!!!)
- Disposal
 - » County or City Health Dept. Regulations



Regulated Waste Handling



- **When moving containers:**
 - » Close immediately.
 - » If leaking, place in secondary container.
 - » If reusable, clean in a manner that will not expose employees.



Laundry



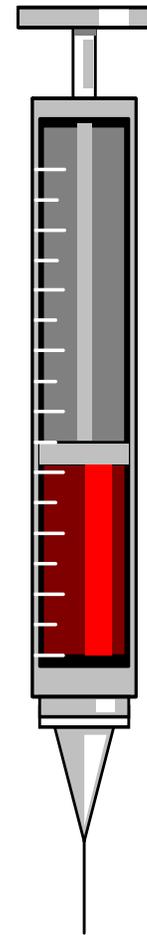
- **Handle as little as possible!**
 - » Bag/containerize where used
 - » Don't sort or rinse where used
 - » Labeled or color coded containers
 - » Leak-proof containers if leaks are likely
- **Employees must wear proper PPE!!!**



Hepatitis B Vaccine



- **3 shot series**
- **Effective for 95% of adults**
- **Post-vaccination titers for high risk HCW**
- **Exposure without vaccination**
 - » Immune globulin ASAP after exposure
 - » Begin Vaccination series



Hepatitis B Vaccination



- **Make Hepatitis B vaccination available**
 - » Declination statement required
 - » Available at later date if desired
- **No cost to employees**
- **Reasonable time and place**
- **If series is interrupted, continue at any time rather than restart series**



Exposure Incident

Contact with blood or OPIM via:

- **Cuts, puncture, needle sticks**
- **Mucous membrane**
- **Eye**
- **Non-intact skin**

Post Exposure Evaluation

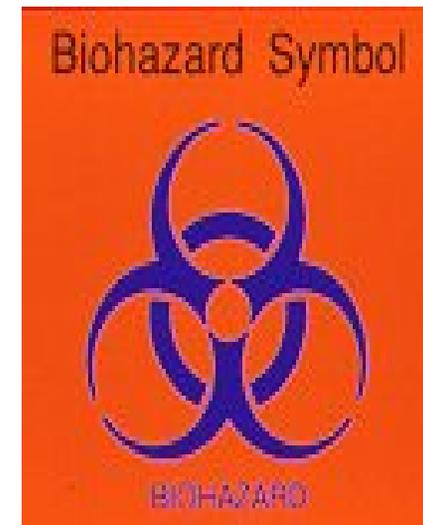


- Insure that the healthcare provider provides to exposed employee:
 - Results of the source individuals test (if legal)
 - Results of exposed employee's test
 - Post exposure treatment as needed
- Provided at no cost to employee

Communication



- **Signs and labels**
 - » Regulated waste
 - » Containers with blood or OPIM
 - » Laundry
 - » Biohazard symbol



Training

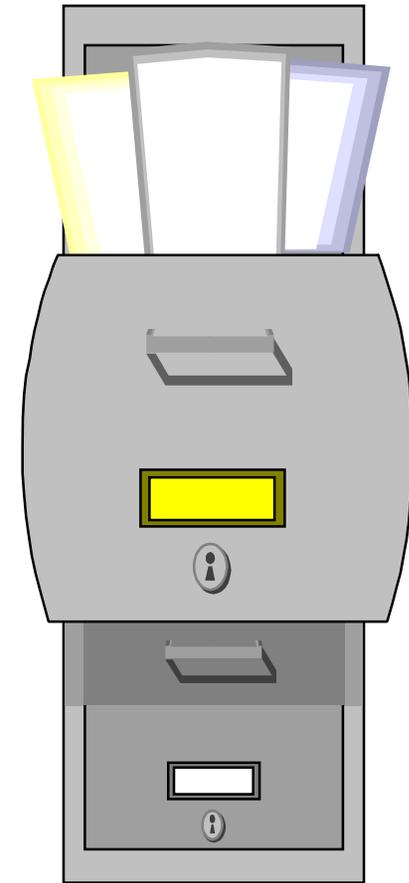


- **Provided to occupationally exposed employees:**
 - » At time of initial assignment
 - » At least annually thereafter
 - » Cover specific required elements
 - » Interactive
 - » Qualified trainers



Recordkeeping

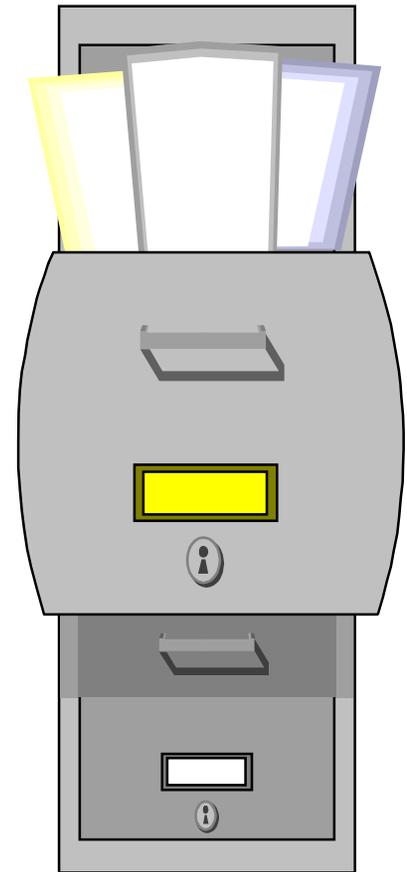
- **Medical records**
 - » HBV vaccination status
 - » Written medical opinion of exposure incidents
 - » Exposure incident details
 - » Maintain for length of employment + 30 years



Recordkeeping



- **Training records**
 - » Dates
 - » Content summary
 - » Trainer name & qualifications
 - » Names of attendees & job titles
 - » Maintain for 3 years





Sharps Log

- **Maintain a separate sharps injury log**
- **Document sharps injuries**
- **Must contain:**
 - Type and brand of device involved
 - Department or work area where exposure occurred
 - An explanation of how the incident occurred

Plan Evaluation



- Review and/or update annually
- Whenever necessary to reflect changes that affect occupational exposure, including improved safety devices



Summary

- **What Blood borne Pathogens are**
- **Why they are Harmful**
- **Employer Responsibilities**
- **Written Exposure Control Plan**





Questions?



Georgia